



QRO

MONTHLY NEWSLETTER OF THE PALOS VERDES AMATEUR RADIO CLUB

FEBRUARY 2015

Dealing With EMI / RFI Wherever and However You Operate

Today's homes and neighbors generate far more Electromagnetic Interference (EMI) and Radio Frequency Interference (RFI) than ever. Our Ray Day, N6HE, will discuss at the PVARC's February 18th meeting how you can combat EMI and RFI around your radio equipment—whether it's coming from your property or a neighbor's.

EMI/RFI getting into your radios will definitely ruin your radio capabilities. You should also avoid creating EMI/RFI that interferes with other radio services or your neighbors' home electronics.

Ray will describe baluns and chokes as means to combat EMI/RFI, as well as personal experiences. Everyone attending the meeting is free to briefly mention if they had an EMI/RFI problem at their home and what they did, if anything, to solve it.

Join us on February 18 at Hesse Park for a really interesting and practical presentation to choke out EMI/RFI. ■

“Solving EMI/RFI Problems”

Speaker: Ray Day, N6HE

When: PVARC Monthly Meeting,
7:30 pm, Wednesday,
February 18, 2015.

Where: Hesse Park Activity Room,
29301 Hawthorne Blvd.,
Rancho Palos Verdes, CA
90275. Visitors Welcome.

Also, our optional pre-meeting dinner: PVARC members and guests are welcome to join our speaker at a 5:30 pm no-host pre-meeting dinner at the Red Onion Restaurant, 736 Silver Spur Road, Rolling Hills Estates. We're always in one of the back rooms.

Thank You for 2014...and here's to 2015

By Diana Feinberg, AI6DF
PVARC President

Our club's business year begins when we elect our annual officers and directors in February, so please forgive what appears like a belated Happy New Year.

I extend a sincere thank you to all our club members for their support of amateur radio in the South Bay cities...and beyond...during 2014. You represent an incredible membership base, with many different interests, occupational backgrounds, and life experiences--yet united by amateur radio.

Our club is also fortunate to have members who provided additional financial or logistical support for our annual programs and activities last year. This support helps keep our dues the lowest of most non-employer amateur radio clubs while providing high-quality programs and community outreach.

The PVARC has many things in common with other clubs, but some things we do are quite unique. Our annual Catalina Island DXpedition for the Islands on the Air program and activation of Pt. Vicente Lighthouse for International Lighthouse Week are two such operating activities. Not every club teaches ham radio license classes but we continue offering Technician and General license classes four times annually at minimal cost to attendees. We also are somewhat unique in having an antenna tower trailer ready for emergency amateur radio communication needs on behalf of our cities.

Finally, I would like to thank the entire 2014 PVARC Board of Directors for their hard work on behalf of our club. Malin Dollinger, KO6MD, has elected to step down from the Board to handle other issues during the next year and we greatly thank him for his service during the past two years.

We greatly appreciate the additional support provided by PVARC members during 2014

John Alexander Fund:

AF6VT	Mike Caulfield
KE6SYL	Jim Haire
KF6LIX	Dale Carlson
KI6YMD	Bob Kollar
KJ6NIY	Gary Parsons
KK6BFI	Laura Behenna
KK6EOS / KK6EOW	Steve and Debbie Marschke
KO6MD	Malin Dollinger
N6HE	Ray Day
W6GEZ	Tony Bressickello

Equipment Donations and Repair Services:

NG6R	Jerry Kendrick
N6KN	Rocco Lardiere
W6PRO (SK)	Hildegard Kurtz, Estate of Robert Kurtz, W6PRO

Thank you everyone for a wonderful 2014...and here's to a great 2015. ■

K6PV Repeater Fund:

AF6VT	Mike Caulfield
K6JBM	Jim Maxwell
KE6SYL	Jim Haire
KF6LIX	Dale Carlson
KF6QFH / KF6QFG	Sid and Fran Wielin
KG6ZJO	Dave Nathanson
KI6EAI	Robert King
KI6EAJ	David King
KI6TEP	Robert Rosenberg
KI6YMD	Bob Kollar
KJ6NIY	Gary Parsons
KK6BFI	Laura Behenna
KO6MD	Malin Dollinger
N6BNP	Knut Myhre
N6HE	Ray Day
W0HAX	John Ickes
W6DDK	Dick Krown
W6GEZ	Tony Bressickello
W7UW / N7ZCZ	Stuart and Martha Salot

PVARC General Fund:

AB6SY	Bob Sylvest
AB9A	Clay Davis
AC6RW	Ron Wagner
AF6VT	Mike Caulfield
AI6DF	Diana Feinberg
K6DPY	Dan Yang
K6HRN	Ken Carr
K6JW	Jeff Wolf
KB6PL	Nicholas Wagner
KG6QWJ / KI6VSB	Denzel and Helen Dyer
KI6EAJ	David King
KI6VRZ	Don Leeds
KK6BFI	Laura Behenna
KO6M	Hal Croyts
W6GEZ	Tony Bressickello
W6HIP	Bob Closson
W6HIP	Bob Closson
W6PBH	Pat Hutchings
WA6ESC	Bill Harper

PVARC Short News Items

The PVARC's upcoming meeting topics...and beyond

PVARC member Ray Day, N6HE, is speaking at our March 18th monthly meeting about the highlights, lowlights, and humorous lights of our club's Islands On The Air DXpedition to Catalina Island during February 25-March 1, 2015. We'll have more video of our operations to show than in recent years. The 2015 IOTA DXpedition also offers new operating options due to higher baggage allowances enabling us to bring more gear (and more food, as well as bringing our bedding and linens due to drought-related laundry restrictions on Catalina Island.)

Our April 15th club meeting speaker will be Bill Prats, K6ACJ, to follow-up on his PVARC July 2014 meeting presentation that showed various ham radio projects using inexpensive Arduino, Picaxe, and Raspberry Pi microprocessors. Bill's upcoming presentation will go through the actual process for implementing useful devices from these microprocessors. He will walk us through all the software and mechanical steps necessary to create a simple flashing light device, as a practical demonstration. The new \$35 Raspberry Pi 2 introduced earlier this month will be able to run a free specialized version of Windows 10 (successor to Windows 8) later this year—and this will greatly accelerate some implementation tasks.

Elsewhere, the PVARC's own "Amateur Radio's International Lighthouse & Lightship Weekend" presentation is scheduled to be given at the W6TRW Radio Club's monthly meeting on April 14 in Redondo Beach; at the South Orange Amateur Radio Association in Mission Viejo on April 20; the Associated Radio Amateurs of Long Beach meeting in Signal Hill on May 1; the San Fernando Valley Amateur Radio Club in Northridge on May 15; and the Fullerton Radio Club's meeting on May 20 in that city. Most recently our Lighthouse Weekend presentation was given on February 2 at the Western Amateur Radio Association's monthly meeting in Fullerton. ■

Election by affirmation for PVARC Officers and Directors at our February club meeting

We will elect our annual officers and directors at the February 18th club meeting. No additional nominations were received during our January meeting, resulting in the previously announced candidate slate being confirmed by a voice affirmation vote at the February meeting.

The candidates who were slated by a Nominating Committee and have committed to serve the PVARC from February 2015 to February 2016 are:

For President: Diana Feinberg, AI6DF
For Vice President: Mike Caulfield, AF6VT
For Treasurer: Peter Landon, KE6JPM
For Secretary: Laura Behenna, KK6BFI
For Directors: Clay Davis, AB9A, and
Ray Day, N6HE

PVARC's antenna tower-trailer to be professionally refinished, going down to the bare metal

The PVARC's antenna tower-trailer frame developed many rusty areas after sitting outdoors 24/7 near our coastline. Now our tower-trailer is about to get a professional re-do that greatly extends its useful life.

After considering several alternatives and cost estimates, the PVARC Board of Directors recently voted to accept a \$985 proposal from Beach Cities Powder Coating to sandblast the tower trailer down to its bare metal (removing all rust and old paint), apply a thick zinc primer coating on all surfaces, and completely powder coat spray and bake a white gloss finish. The 39' tower itself does not need re-coating and will be removed before the trailer enters the paint shop. The PVARC received \$600 in donations towards the tower-trailer recoating that will reduce our club's net outlay to \$385.

Dan Colburn, W6DC, obtained the tower-trailer for us many years ago when he noticed it was about to be discarded as surplus property from the former McDonnell Douglas plant in El Segundo. We have repeatedly used the tower-trailer for Field Day and Lighthouse Weekend operations, but its principal purpose is being ready for emergency radio communication when needed in our area.

Over the years various PVARC members have done a wonderful job patching-up the tower-trailer's many rusty spots and paint chips, at a minimal cost. But after many of these patches, in the Board's opinion, the tower-trailer now requires a complete re-coating.

Thanks go to PVARC Past President Joe Pace, NZ6L, for taking our tower trailer to several reputable powder-coating shops, getting cost estimates, and providing guidance to the Board. Joe will also handle getting the tower-trailer through the re-coating process in March or early April.

During 2010-2012 the PVARC kept the tower trailer in good operating shape by replacing its tires, winches, and lift cables. When the sandblasting and recoating are completed our tower-trailer will look almost new, at a fraction of the cost to purchase one. ■

The PVARC's tower-trailer has extensive rust across its frame and tire rims, as seen in this 2014 Field Day photo at Ridgecrest Intermediate School. Walt Ordway, K1DFO, is shown adjusting the tower along with Peter Landon, KE6JPM, partially visible at left.

A complete sand-blasting, zinc primer recoating, and powder spray coating that's professionally done will greatly prolong our tower-trailer's useful life.

PHOTO: DIANA FEINBERG, AI6DF



K6PV/6 heads to Two Harbors on Catalina Island, February 25 through March 1

The PVARC's Catalina Island activation for the Radio Society of Great Britain's "Islands On The Air" program runs from Wednesday afternoon, February 25 until 1000 hours Sunday, March 1. Our team departs from Long Beach on the morning of February 25 and should be on the air by late afternoon that day.

Pending last-minute changes due to illness or personal commitments, our DXpedition team is comprised of: Ray, N6HE (Team Leader); Bill, WA6ESC; Bob, W6HIP; Chris, KA6WNL; Clay, AB9A; Diana, AI6DF; Don, KE6PMN; Jeff, K6JW; Joe, NZ6L; Mike, AF6VT; Norm, K6UU; and Peter, KE6JPM.

The DXpedition team was recently informed of some new challenges in placing and mounting our antennas following policy changes by the organization that manages our campground area. Nevertheless, we are confident of finding ways to satisfactorily place our antennas. We are bringing the PVARC's recently acquired NA4RR 6-band

hexbeam antenna (obtained at a very reasonable cost) and this antenna's light weight will enable us to live with the new restrictions.

PVARC members can keep in touch with the DXpedition by monitoring our K6PV repeater (447.120 MHz, PL 100.0). DXpedition members will also monitor K6PV and frequently report on our operations.

Don't forget there's also a user-controlled webcam on the hillside above our campground area. You might be able to see us assembling antennas or moving about. Check out: <http://www.visitcatalinaisland.com/island-info/media/two-harbors-cam> (shown below is a screenshot of a Two Harbors webcam image taken on February 14, 2015, at 2:17 pm). The webcam is located above the Banning House bed and breakfast lodge. You might even be able to discern our four-legged friend George the Buffalo wandering about. ■



PVARC News:

Sign-up for HAMCON 2015 by Aug.1 at Early-Bird Rate



HAMCON 2015, the 2015 ARRL Southwestern Division Convention, comes to town September 11-13 at the Torrance Marriott Hotel adjacent to Del Amo Center.

One need not be an ARRL member to attend--all hams are welcome. The early registration fee is just \$22 through August 1 (\$27 thereafter), but you will learn and see a lot. All registrations also include four free door prize tickets—no additional tickets will be sold, making your chances of winning a ham radio prize equal to everyone else.

HAMCON will have four tracks of interesting concurrent talks on Emergency Communication; DXing and Contesting; General Amateur and Technical Topics; and Topics for Newer Hams.

HAMCON 2015 has already completely filled its 65-booth Vendor/Exhibitor Room in the Marriott's Grand Ballroom and several adjoining rooms. You'll be able to see and touch many brands of amateur equipment, including those not sold in ham radio stores (such as Elecraft and FlexRadio, to name two).

Keynote speakers for the Saturday lunch, Saturday night banquet, and Sunday breakfast will be announced in the months ahead. Attendees at each meal will participate in a special prize drawing following the speaker's program.

You can register by completing the form shown elsewhere in this QRO issue or by visiting HAMCON 2015's website at www.hamconinc.org and download a registration or register online using HAMCON's secure PayPal link.

The PVARC is one of 14 Los Angeles County and Orange County ham radio clubs behind HAMCON 2015. We'll be operating the Information Desk during the convention and hope many of our members can devote just two hours to staff our function. ■

WELCOME NEW MEMBERS OF THE PALOS VERDES AMATEUR RADIO CLUB IN 2014-2015

CINDY SATTLER, KK6EOZ
 DAVE HELD, WA6PHS
 RAPHAEL YOON, AI6GP
 JOEL PASTOR, WJ1P
 TERRI PASTOR, W6BMD
 THOMAS BACALJA
 ERIC OLSON, KK6JPV
 JAMES MAXWELL, W6JBN
 CARL BARNES, AI6BA
 ALLEN BINDER, KK6MNU
 HENRY BREMER, KK6MNO
 SCOTT HARTNETT, KK6MNM
 JAMES LIAO, KK6MNT
 RICARDO QUINONES, KK6MNQ
 SHAWN SORBOM, KK6MNN
 KELVIN VANDERLIP, JR., KK6MNS
 RON WAGNER, AC6RW
 PAT BREWSTER, KK6KCL
 LUIS CARRANZA, KK6PIN
 JOSEPH ENFIELD, KK6PIO
 CHRIS SIOURIS, KK6PRU
 SUSAN SIESS, KK6QLY
 GARY FORISTER, N6HMR
 TREVA FORISTER, N6HMS
 PATRICK GARVEY, K6PDG
 DAVID HARMON, KE6OJN
 JOHN JENSEN, KK6CYU
 JAMES NADAL, WA6RYA



Above: The NA4RR 6-band hexbeam antenna; photo from manufacturer's website, <http://www.k4hex.com/home.asp> (tower and mast not included.)

PVARC acquires NA4RR 6-band hexbeam antenna

The PVARC owns several donated antennas that work well in many situations. But earlier this month we acquired for a very reasonable cost an NA4RR 6-band hexbeam antenna that disassembles into a bag about the size of a large golf bag. This antenna operates on the 20-, 17-, 15-, 12-, 10-, and 6-meter ham bands.

We purchased this lightweight hexbeam to more easily take a multiband directional antenna on our annual IOTA Dxpeditons to Catalina Island. But other uses await: it can also be used at Field Day and at the Pt. Vicente Lighthouse during Lighthouse Weekend.

Purchasing this antenna was extremely timely in light of some new restrictions affecting our antennas in the IOTA Catalina Island campground area.

The NA4RR hexbeam antenna rated 4.8 out of 5.0 on eham.net; the reviews may be seen at: <http://www.eham.net/reviews/detail/11234>

Our club still owns a very large Mosley Classic-33 tri-band Yagi, as well as two special-purpose multi-band wire antennas built and donated by long-time PVARC member and Past Treasurer Bill Harper, WA6ESC. ■

◆ PVARC's financial report is available upon request to any member.

Palos Verdes Amateur Radio Club

An American Radio Relay League Affiliated-Club

Board of Directors:

President	Diana Feinberg, AI6DF
Vice President	Malin Dollinger, KO6MD
Treasurer	Peter Landon, KE6JPM
Secretary	Mike Caulfield, AF6VT
Directors	Clay Davis, AB9A, Ray Day, N6HE

Appointed Offices:

QRO Editor	Diana Feinberg, AI6DF
Webmaster	John Freeman, WW6WW
Club Librarian	Bryant Winchell, W2RGG
K6PV Repeater Trustee	Mel Hughes, K6SY
LAACARC Delegate	Jeff Wolf, K6JW
VE Coordinator	Dave Scholler, KG6BPH
VE Liaison	Diana Feinberg, AI6DF
Net Control Operators	Malin Dollinger, KO6MD, Dale Hanks, N6NNW, Peter Landon, KE6JPM, Bob Sylvest, AB6SY, Dan Yang, K6DPY

Contacts:

QRO Editor: 310-544-2917, ai6df@arrl.net
Webmaster: 310-541-6971, jrfree@cox.net

Email us: k6pv@arrl.net

Website: www.palosverdes.com/pvarc

Mailing Address:

Palos Verdes Amateur Radio Club
PO Box 2316
Palos Verdes Peninsula, CA 90274-8316

Monthly Meetings:

Third Wednesday (except August and December) at 7:30 pm at Fred Hesse Park, 29301 Hawthorne Blvd., Rancho Palos Verdes, CA. Visitors always welcome.

Repeaters (Open, though often listed as "Closed"):

Club: K6PV, 447.120 MHz (-), PL 100.0, CTCSS
"PV-West": K6IUM, 449.980 MHz (-), PL 173.8, CTCSS

To order a Club badge:

Karen Freeman, KG6BNN, 310-541-6971

To order a Club jacket or patch:

Dave Scholler, KG6BPH, 310-373-8166

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Front page photo—Pt. Vicente Lighthouse is backlit at noon on a very warm February day, with Catalina Island in the background. PHOTO: DIANA FEINBERG, AI6DF

Follow-up to our January meeting topic: More about frequency re-use

By Diana Feinberg, AI6DF
QRO Editor

“Frequency Re-use Over Terrain” was the presentation topic at the PVARC’s January 21 meeting—well, sort of. Many who attended left this meeting feeling that while the presentation slides were “interesting” some key areas were missing in action.

Much of the presentation consisted of maps or other images that visually plotted locations of transmitters simultaneously using various frequencies within aviation, AM radio, or television broadcasting services. Not covered at all were:

- Any theory behind frequency re-use, i.e., determining how far or where to space transmitters on the same frequency
- Frequency re-use in the amateur radio spectrum
- The RF spectrum area where frequency re-use is not just a hot topic, it’s red-hot: cellular phone systems. Cellular network operators have a limited pool of frequencies in a geographic market but need ways to best re-use that frequency pool among thousands (if not millions) of customers.

This article briefly comments on these omitted topics. I do not purport to be a frequency re-use expert but even a casual search reveals substantial information available online—especially on frequency re-use for cellular networks. Let’s take a short look at the three omitted areas listed above.

Some theory behind frequency re-use

At the heart of frequency re-use are: each transmitter’s Effective Radiated Power (ERP) after calculating all gains and losses in the antenna system, antenna directionality, antenna height above average terrain, the communication mode (whether AM, FM, or digital), the frequency involved, and typical receiver sensitivity. Complications involve over-the-horizon factors due to: reflection from terrain or

buildings (i.e., multi-path distortion); refraction due to atmospheric conditions (i.e., propagation); and diffraction from signals along Earth surfaces (i.e., “knife-edging”).

The key measure allowing frequency re-use is setting a receiver Carrier to Interference objective. In other words, what is the acceptable minimum desired signal strength necessary to avoid being degraded by an interfering station on the same frequency.

The C/I ratio is typically defined in dB as:

C = Received carrier power

- Transmitter power in dBm,
- **plus** Transmit station antenna gain in dB
- **plus** Receive station antenna gain in dB
- **minus** “Free space” signal loss in dB
- **minus** Transmit station waveguide loss, if any, in dB
- **minus** Receive station waveguide loss, if any, in dB

I = Interfering carrier power

- Transmit power of Interfering station in dBm
- **plus** Interfering station’s transmit antenna gain in dB
- **plus** desired Receive station’s antenna gain in dB—measured at the angle of arrival from the Interfering station
- **minus** angular discrimination of both the Interfering transmit antenna and the desired Receive station antenna
- **minus** “Free space” signal loss of interfering signal path, in dB
- **minus** Interfering transmit station’s waveguide loss, if any
- **minus** desired Receive station’s waveguide loss, if any.

From this point, utilizing the C to I calculation in dB gets complex depending on the communication mode. Any discussion goes beyond the scope of this short article but perhaps is worthy as a future club presentation.

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Follow-up to our January meeting topic: More about frequency re-use

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For example, with AM signals such as aviation (108-135 MHz), AM broadcasting, HF SSB, etc., there are two calculation models: one for longer-paths up to 3,000-4,000 miles and another for shorter paths under 300 miles. In both models it's necessary to determine how much of the overall signal noise is caused by the interfering station—and which is coming from carrier-beat interference vs. sideband interference.

For digital systems, things are simplified by determining the point where the interfering signal fades—with no worry beyond that. The appropriate C/I ratio usually is based on whatever allows error-free transmission of the desired signal.

With FM, the receiver capture effect helps (or complicates)—only the strongest signal is captured but sometimes it might not be the one you want.

Frequency Re-Use for Amateur Radio

Of interest to hams is how VHF/UHF amateur radio repeaters share frequencies within a region—though not always successfully. In Southern California three frequency coordination boards allocate repeater frequency pairs and maintain band plans: TASMA, which handles 2-meters; the 220 SMA, which oversees the 1.25 meter amateur band; and SCRBBBA, designated to oversee the 10-meter, 6-meter, 440 MHz, 900 MHz, and 1.2 GHz amateur bands.

These coordination boards use software models (some of them free) that determine signal coverage from any given point with assumed power levels, antenna characteristics, and interactions with terrain features. Two or more repeaters on the same frequency pair can be mapped to see how their signals overlap, along with respective signal strengths. The FM capture effect ensures receiving only the strongest signal, but users of a distant repeater on a frequency pair might find their receiver captured by a louder nearby repeater while the receiver squelch is open. A problem with some older ham repeaters and older ham transceivers: quite a few still do not have Tone Squelch capability.

Here are some radio propagation and predictions software packages you can use:

Radio Mobile freeware by VE2DBE:

<http://www.dxzone.com/cgi-bin/dir/jump2.cgi?ID=10770>

Radio Soft (paid package, widely used for FCC filings)

<http://www.radiosoft.com/>

Splat! For Windows:

<http://blog.gearz.net/2007/09/rf-propagation-modeling-with-splat-for.html>

Visual LMR:

<http://www.dxzone.com/cgi-bin/dir/jump2.cgi?ID=29236>

The coordination boards have occasional issues with some long-time repeaters being almost entirely dormant, while newer groups are struggling for a coordinated frequency pair and can't get one. At the present time there are reportedly no coordinated frequency pairs available for new repeater owners in the 2-meter, 220, and 440 MHz ham bands in the greater Los Angeles area.

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Follow-up to our January meeting topic: More about frequency re-use

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Currently the hottest topic in frequency re-use: cellular networks

Going where the money is always attracts funding and resources. Such is the business of cellular systems, where very sophisticated software programs and engineering staffs maximally facilitate frequency re-use.

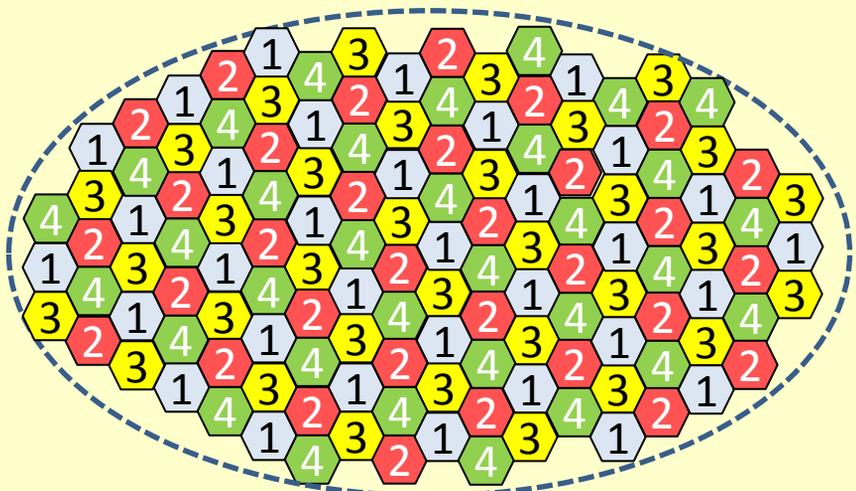
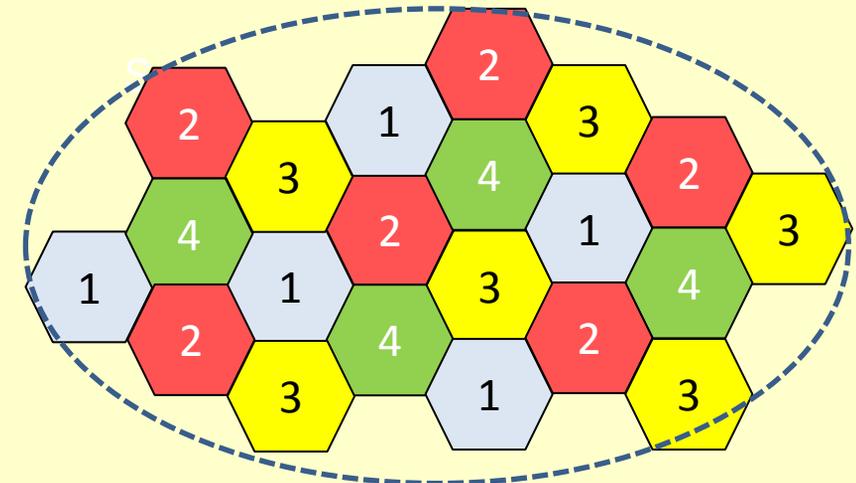
In general, cellular networks leverage their costly investments in regional frequencies by making their cells as small as possible, using the lowest possible power in each cell and managing connections through network software.

In the theoretical diagrams below, assuming four different frequency pools labeled 1 through 4-- each with 10 non-overlapping frequencies--the same sized oval area provides far more frequency re-use with very small cell sizes and low power. In the top diagram, these 21 large cells at best would have 210 frequencies available. In the identical oval shown in the bottom diagram, the 130 micro-cells could make far more frequencies available. Complicating matters: terrain issues pose dead-zone challenges not evident in theoretical hexagonal cells (hello, Palos Verdes Peninsula?) and inability to place antennas where needed.

In closing, this short article attempted to summarize some missing aspects from last month's presentation without the extensive technical detail found in many documents. We hope a future club presentation can again explore frequency re-use to further explain the concepts involved. ■

Sounds obvious: smaller cell sizes with same number of non-overlapping frequencies yield more frequency re-use

Frequency Pool	Large Cells	Micro Cells
1 (light blue)	5	32
2 (red)	6	32
3 (yellow)	6	33
4 (green)	4	33
If 10 frequencies in each cell, maximum frequencies	210	1,300



PVARC News

PVARC 2015 dues coming due, same low cost as 2014

Just a reminder...PVARC annual membership dues for 2015 are coming due. If you haven't already renewed, please take a moment to send your 2015 dues and annual membership renewal form (shown on the next page of this **QRO** issue.) Thank you to those who have already renewed.

The PVARC continues having among the lowest dues of amateur radio clubs in Los Angeles County. Annual dues for 2015 remain at just \$15 for a single person membership and \$17 for a family membership. The table below shows dues for some other ham clubs that are not affiliated with an employer.

In addition to having one of the lowest membership costs, we offer great value to our members through many activities. We have a deep base of radio knowledge that members can tap; monthly speakers at club meetings; interesting HF operating events from our annual Islands On The Air DXpedition to Catalina Island and International Lighthouse Weekend; our annual family picnic at the Pt. Vicente Lighthouse; a great Field Day experience; a monthly newsletter; frequent ham radio gift certificates as prizes; free ham license classes; and opportunities to operate at meaningful public service activities. Above all, we strive for a friendly atmosphere where all members are treated respectfully regardless of license class or experience.

You may send your renewal form and payment to our mailing address (P.O. Box 2316, Palos Verdes Peninsula, CA 90274-8316) or bring them to our February meeting. We appreciate your continued support and always seek to better serve our members and South Bay communities. Let us know how we can improve your amateur radio experiences. ■

L.A.-Area Amateur Radio Clubs (Non-employer affiliated)	Annual Dues— Single Membership	Annual Dues— Family Membership
Palos Verdes Amateur Radio Club	\$15	\$17
San Fernando Valley Amateur Radio Club	\$18	+ \$6 for each
South Bay Amateur Radio Club	\$20	\$30
United Radio Amateur Club	\$20	\$25
Downey Amateur Radio Club	\$20	\$35
Westside Amateur Radio Club	\$20	+ \$7.50 for each
Southern California DX Club	\$24	+ \$6 for each
Associated Radio Amateurs of Long Beach	\$25	+ \$5 for each
Pasadena Radio Club	\$25	None
Independent Radio Club	\$35	\$35
Crescenta Valley Radio Club	\$35	None

Data: Club websites, as of December 7, 2014.



Palos Verdes Amateur Radio Club
 P.O. Box 2316
 Palos Verdes Peninsula, CA 90274
www.palosverdes.com/pvarc

**NEW MEMBER &
 MEMBERSHIP RENEWAL FORM**

NEW: _____ **RENEWAL:** _____ **MEMBERSHIP DATE:** _____

Last Name: _____ First Name: _____ Spouse: _____

Street Address: _____

City: _____ Zip: _____

Phone: Home _____ [] Work _____ [] Cell _____ []
 (please indicate [x] which number(s) [limited to two] you would like included in the PVARC roster)

Email address: _____

(Unless otherwise noted emails will be sent to the applying member only)

License Call: _____ License Class: _____ ARRL Member _____ Birth Mo./Day: _____

Other Amateur Radio Groups You Belong To _____

Additional Household and/or Family Members (if Applicable):

Name _____ Call _____ Class _____ ARRL _____ Birth Mo./Day: _____

Name _____ Call _____ Class _____ ARRL _____ Birth Mo./Day: _____

Name _____ Call _____ Class _____ ARRL _____ Birth Mo./Day: _____

Individual membership (\$15.00) \$ _____

Household and/or Family membership (\$17.00) \$ _____

Donation to the John Alexander Fund \$ _____

Donation to the Repeater Fund \$ _____

Other Donation to PVARC \$ _____

Cash: _____ or Check #: _____ Date _____ TOTAL \$ _____

Please make checks payable to: Palos Verdes Amateur Radio Club; Dues based on January 1st to December 31st year.
 All New and Renewal Member applications must be signed below.

In applying for or renewing my membership in the Palos Verdes Amateur Radio Club, I agree to abide by the Club's constitution and by-laws (available on-line at: <http://www.palosverdes.com/pvarc/constitution.htm> or upon request.

Signature: _____ Date: _____

Family Member Signature: _____ Date: _____

Palos Verdes Amateur Radio Club 2015 Calendar

January							February							March							April						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
				1	2	3	1	2	3	4	5	6	7	1	2	3	4	5	6	7				1	2	3	4
4	5	6	7	8	9	10	8	9	10	11	12	13	14	8	9	10	11	12	13	14	5	6	7	8	9	10	11
11	12	13	14	15	16	17	15	16	17	18	19	20	21	15	16	17	18	19	20	21	12	13	14	15	16	17	18
18	19	20	21	22	23	24	22	23	24	25	26	27	28	22	23	24	25	26	27	28	19	20	21	22	23	24	25
25	26	27	28	29	30	31								29	30	31					26	27	28	29	30		

May							June							July							August						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
31					1	2	1	2	3	4	5	6				1	2	3	4	30	31					1	
3	4	5	6	7	8	9	7	8	9	10	11	12	13	5	6	7	8	9	10	11	2	3	4	5	6	7	8
10	11	12	13	14	15	16	14	15	16	17	18	19	20	12	13	14	15	16	17	18	9	10	11	12	13	14	15
17	18	19	20	21	22	23	21	22	23	24	25	26	27	19	20	21	22	23	24	25	16	17	18	19	20	21	22
24	25	26	27	28	29	30	28	29	30					26	27	28	29	30	31	23	24	25	26	27	28	29	

September							October							November							December								
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S		
			1	2	3	4	5					1	2	3	1	2	3	4	5	6	7				1	2	3	4	5
6	7	8	9	10	11	12	4	5	6	7	8	9	10	8	9	10	11	12	13	14	6	7	8	9	10	11	12		
13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	21	13	14	15	16	17	18	19		
20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	28	20	21	22	23	24	25	26		
27	28	29	30				25	26	27	28	29	30	31	29	30						27	28	29	30	31				

2015 Major Contest Dates

- ARRL ■ CQ Magazine and Other
- Jan. 23-25: CQ Worldwide 160-Meter (CW)
- Jan. 24-25: ARRL January VHF Sweepstake
- Feb. 13-15: CQ Worldwide RTTY WPX
- Feb. 20-22: ARRL DX (CW)
- Feb. 28: North American RTTY QSO Party
- Feb. 28-29: CQ Worldwide 160-Meter (SSB)
- Mar. 6-8: ARRL DX (SSB)
- Mar. 27-29: CQ Worldwide SSB WPX
- May 29-31: CQ Worldwide CW WPX
- Jun. 13-14: ARRL June VHF Contest
- Jun. 27-28: ARRL Field Day
- July 11-12: IARU World Championships
- Jul. 18-19: CQ Worldwide VHF
- Jul. 18: North American RTTY QSO Party
- Aug. 1-2: ARRL UHF Contest
- Sept. 12-13: ARRL September VHF Contest
- Sept. 25-27: CQ Worldwide RTTY DX
- Oct. 3-4: California QSO Party
- Oct. 23-25: CQ Worldwide SSB DX
- Nov. 7-8: ARRL Sweepstakes (CW)
- Nov. 21-22: ARRL Sweepstakes (SSB)
- Nov. 27-29: CQ Worldwide CW DX
- Dec. 11-13: ARRL 10-Meter Contest
- Dec. 27-28: Worldwide Iron Ham Contest

 Club Meeting
 PVARC Public Service
 PVARC Ham License Class

PVARC Nets

Tuesdays at 7:30 pm on K6PV, 447.120 MHz (-), PL 100.0, and 144.910 MHz, Tone Squelch, PL 156.7

PVARC Meetings & Meals

Meetings 7:30 pm **3rd Wednesdays** except August and December at Fred Hesse Park, 29301 Hawthorne Blvd., Rancho Palos Verdes. Guests welcome. A no-host dinner at 5:30 pm before club meetings is held at the Red Onion Restaurant, 736 Silver Spur Road, Rolling Hills Estates.
3rd Sunday in August: Annual family picnic at Pt. Vicente Lighthouse.
December 10: Holiday dinner. Ports O'Call Restaurant, San Pedro.

Major Ham Radio Conventions

- Apr. 17-19:** International DX Convention, Visalia, CA
- May 15-17:** Dayton HamVention
- Sept. 11-13:** HAMCON 2015/ARRL Southwestern Div. Convention, Torrance Marriott Hotel

PVARC Public Service Events

- Aug. 8:** Rolling Hills Estates "Hills Are Alive" 5K/10K
- Sept. 7:** L.A. Harbor "Conquer the Bridge" Race
- Sept. 26:** RAT Beach Bike Tour
- Nov. 14:** Palos Verdes Half-Marathon and 10K

PVARC HF Operating Events

- Feb. 25-**
 - Mar 1:** Islands On The Air DXpedition, Catalina Island;
- June 27-28:** ARRL Field Day;
- Aug. 14-16:** Intl. Lighthouse Weekend, Pt. Vicente Lighthouse

PVARC Ham License Classes

Fred Hesse Park (Fireside Room), 29301 Hawthorne Blvd., Rancho P.V.
Feb. 21 & 28; May 2 & 9;
 Additional dates to be announced

Tell your friends and relatives about the PVARC's February 2015 Technician and General license classes



Whether for emergency communication, communicating around the world, or learning a bit about electronics, there's nothing else like amateur radio (also known as "ham radio"). Amateur radio operators have long provided the communication "when all else fails" during disasters. Please tell your friends and relatives that with a short course, they can join the over 710,000 men, women, and children in the United States from all walks of life who are licensed to operate ham radios.

Two Free Amateur Radio Courses

FCC **"Technician"** course (entry level)

FCC **"General"** course (2nd level)

Each course is 2 sessions

The next sessions are on 21 February and 28 February, 2015

Technician 9:30 AM to 1:45 PM both Saturdays

General 2:00 PM to 5:00 PM both Saturdays

FCC tests will be 10:00 AM to Noon on Saturday, 7 March, 2015.

The Palos Verdes Amateur Radio Club will make a brief presentation at 9:30 AM at the start of the 21 February Technician class on how to get further involved with amateur radio.

The location is Fred Hesse Park, 29301 Hawthorne Blvd., Rancho Palos Verdes.

Confirm your attendance to Walt, K1DFO at waltordway@juno.com

No fee for either course; taking the FCC Test is \$15. Optional Material (sold at cost):

- Gordon West book with all the FCC test questions,

\$22 for the Technician, \$26 for the General;

- Copy of PowerPoint charts: \$20 for the Technician, \$20 for the General.

For courses sponsored by the Palos Verdes Amateur Radio Club, students thru grade 12 who also pass their examination at a PVARC test session will, upon application to the Club, be eligible for reimbursement up to a maximum of \$50 to cover the cost of materials and the examination fee.

Everyone who obtains their first ham radio license through a PVARC test session, regardless of age, will receive a free membership in the Palos Verdes Amateur Radio Club for the remainder of the current calendar year.

For more information contact Walt, K1DFO, at waltordway@juno.com



HAMCON 2015 2015 ARRL Southwestern Division Convention

September 11-13, 2015
Torrance Marriott South Bay Hotel
3635 Fashion Way, Torrance, CA 90503

Convention Registration Form

Visit us at: www.hamconinc.org/

All attendees over 16 years old must have a separate paid registration; no charge for registered children under 16 when accompanied by paid Adult registrant. Children under 16 will receive different color ID.

Call Sign: _____

Last name: _____

First name: _____

Street or mailing address: _____

City: _____

State & ZIP Code: _____

E-mail address: _____

Phone: _____

Additional Attendee #1

Call Sign: _____

Adult: Child:

Last name: _____

First name: _____

Additional Attendee #2

Call Sign: _____

Adult: Child:

Last name: _____

First name: _____

Additional Attendee #3

Call Sign: _____

Adult: Child:

Last name: _____

First name: _____

Every adult Early Registrant receives a free Convention Pin or Patch (a \$5 value): # of Pins ____; Patches ____

	Per Person	x	Number	= \$ Total
Early Registration, postmarked by July 31, 2015:	\$22			
Regular Registration, Aug. 1-Sept. 13, 2015:	\$27			
Saturday Lunch** : __Chicken __Vegetarian	\$32			
Saturday Dinner** : __Chicken __Vegetarian	\$50			
Saturday Dinner** : __Beef (reflects hotel's cost)	\$58			
Sunday Breakfast** (plated meal: meat, eggs, +)	\$25			

** Each meal has a special prize drawing exclusively for attendees

Additional Convention Pins ____ or Patches ____ \$5 ea.

For discounted HAMCON room rates at the Torrance Marriott Hotel, visit www.hamconinc.org by Aug. 15, 2015; in Main Menu click on "Hotel Room Reservations"

Total Amount Paid:	
Cash	Check

Please send Registration Form and Check to:

HAMCON Inc.
c/o Margie Hoffman, KG6TBR
21612 Grovepark Dr.
Santa Clarita, CA 91350

For HAMCON staff use:
Registration received by: _____
Date received & registration #: _____
Amount received: \$ _____

Captions to photographs and other illustrations in this month's QRO

Certain software programs that convert the text of PDF files into spoken words reportedly have difficulty converting short stand-alone text items such as photo captions and text boxes. The following combines or explains all short text items in this month's QRO into a larger body of text to facilitate conversion into speech.

Page 1: The photo at the top shows the Pt. Vicente Lighthouse at noon on a warm February day, with Catalina island in the background across the channel.

Page 2: Several columns of tabular listings show the PVARC members who donated funds or logistical support to the club in 2014.

Page 4: The photo at bottom right shows the club's antenna tower trailer and has the caption, "The PVARC's tower-trailer has extensive rust across its frame and tire rims, as seen in this 2014 Field Day photo at Ridgecrest Intermediate School. Walt Ordway, K1DFO, is shown adjusting the tower along with Peter Landon, KE6JPM, partially visible at left.

A complete sand-blasting, zinc primer recoating, and powder spray coating that's professionally done will greatly prolong our tower-trailer's useful life. PHOTO: DIANA FEINBERG, AI6DF "

Page 5: The photo at the bottom shows a view of Two Harbors on Catalina Island taken on February 17, 2015, from the webcam located above the Banning House bed and breakfast inn.

Page 6: The illustration at top left is the logo for HAMCON 2015, the ARRL 2015 Southwestern Division Convention in Torrance during September 2015.

Page 7: The photo at top left shows the new hexbeam antenna model which the PVARC just purchased. The caption says, "Above: The NA4RR 6-band hexbeam antenna; photo from manufacturer's website, <http://www.k4hex.com/home.asp> (tower and mast not included.)

Page 10: Two illustrations at the bottom show how the distance between cellular phone cells affects the number of available frequencies. The top illustration shows larger cell sizes, resulting in fewer overall frequencies being simultaneously available. The bottom illustrations shows that with micro-cells the frequencies can be re-used more often between the cells occupying an area.

Page 11: A table on this page shows the relative membership costs of various amateur radio clubs in the Los Angeles area.

Page 13: The entire page is the PVARC's activity calendar for 2015.

Page 14: A small photo at top left in the announcement for Walt Ordway's next ham radio license classes shows a Kenwood HT radio.

Page 15: The entire page is the registration form for HAMCON 2015, the 2015 ARRL Southwestern Division Convention in Torrance.